GUIDEBOOK

FOR COMPLIANCE-BASED

ENVIRONMENTAL MANAGEMENT SYSTEMS

Boat Building and Repair Industry

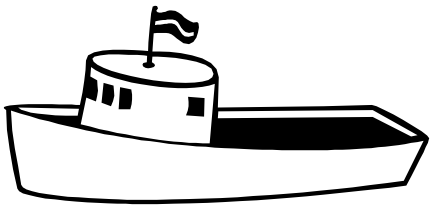

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Table of Contents

EMS Guidebook

Model EMS Manual

Introduction

Adopting an Environmental Management System (EMS) can help a company's competitive position by improving production efficiency, decreasing waste, reducing regulatory compliance costs, and improving marketing image.

"EMS" is a systematic approach to ensure continued compliance, increase facility-wide environmental awareness, increase opportunities for pollution prevention, and develop new ways to go "beyond compliance." An EMS is a tool to organize a company's environmental requirements and goals. The EMS manual serves as a framework to organize the environmental program and make compliance easier and more assured.

There are a wide variety of EMSs, ranging in scope and complexity. Some require formal audits and certifications, while others are simpler and serve only as internal guidance documents. This document is based on the "Compliance Focused EMS" (CF-EMS) developed by Steven Sisk of the United States Environmental Protection Agency (USEPA). This model has been adapted to serve as a template for a formal EMS Manual for companies involved with composite boat building and repair.

It is intended that this model will serve as an example, to be modified and adapted by each specific facility based on their own regulatory assessment, and to fit in with existing policies, procedures, and organization. The CF-EMS model was chosen for this manual because it has many benefits over other EMS models:

- It can be copied, adapted, or reproduced, as long as credit is given to USEPA.
- Its focus on compliance may be more appropriate and efficient for composite boat building and repair facilities.
- It emphasizes the State of Maine's commitment to ensuring compliance with environmental laws.
- It can be more efficient to implement than other types of EMSs because a custom environmental assessment is used to prioritize the facility's efforts to refine and implement the EMS.

Once compliance has been ensured through a systematic EMS approach, the facility can refine the EMS to improve their environmental performance "beyond compliance" where economically or environmentally justified.

This model can be used on its own to help a company improve their environmental performance or as a basis for "Third Party Certification." This EMS model is also easily adaptable to meet the requirements of other EMS models such as ISO 14001 developed by the International Organization for Standardization.

Overview of the Environmental Management System

Environmental Management System Policy

The condition of Maine's environment is vitally important to the economics of the boat building and repair industry. Therefore, it is important that members of this sector take reasonable measures to minimize their environmental impacts.

One of the most important ways to prevent environmental problems is to ensure the company has a clear environmental policy. The company's environmental policy defines their outlook and philosophy toward the environment, and defines what level of effort the company needs to support these beliefs.

The policy is usually initiated by a company's top management, and may be further developed by a designated EMS Coordinator. The policy should specify the company's actual level of environmental commitment, and describe what actions and resources the company will commit to their environmental programs. If top management is committed to doing only what is needed to meet minimum compliance, the policy should state that. If they are committed to going beyond compliance and minimizing their environmental impacts, the policy should reflect that as well. Once the policy is developed and signed by top management, it needs to be presented to all employees so that they fully understand the intent of the policy.

Many companies prominently display their environmental policy in public areas of their buildings and may even use them in their advertising. For these reasons, it is very important that the words of the policy reflect the actions the company actually takes.

Organization, Personnel, and Oversight of EMS

Clearly defined roles and responsibilities are essential to ensuring continued compliance. This section describes the organization of the facility, often including an organizational chart, and outlines how the EMS/Environmental program is implemented and maintained. Responsibilities of each person on an organizational chart should be expanded to clearly identify their environmental responsibilities, duties, roles, and authority of key personnel in implementing and sustaining the EMS.

Accountability and Responsibility

The scope and level of detail needed in this section depends on the size and complexity of the facility. This section specifies accountability and responsibility of management, staff, service providers, and contractors for environmental protection practices. This section defines responsibility for assuring compliance, filing required compliance reports, and implementing corrective or preventive actions for all environmental program areas. It describes incentive programs for managers and employees for maintaining or exceeding expectations of compliance policies, standards, and procedures. Finally, it describes potential consequences for departure from specified operating procedures, including liability for civil/administrative penalties due to non-compliance. Clearly defined roles and responsibilities are essential to ensuring continued compliance.

Identification, Interpretation, and Communication of Regulatory Requirements

One of the most effective and efficient ways to identify and interpret the regulatory requirements that apply to a specific facility is for the facility to undergo a comprehensive environmental assessment. This assessment provides a thorough regulatory evaluation and identifies any corrective measures needed. The evaluation should also serve as a "non-compliance causal analysis," which identifies the root causes of any problems, and helps ensure they will be effectively addressed through the EMS. Once the assessment

has been conducted and the EMS Manual has been updated to address the findings, it is important for the facility to ensure their employees remain informed of any applicable regulatory changes.

This section describes a process for identifying, interpreting, and communicating environmental requirements to affected personnel, service providers, and contractors, and ensuring that facility activities conform to those requirements. It also specifies procedures for identifying and obtaining information about upcoming changes in environmental requirements, and incorporating those changes into the EMS. The ability to identify, understand, and communicate regulatory requirements in an accurate, thorough and timely manner is essential for continuous environmental compliance. This section also includes procedures for communicating environmental issues and information to all personnel, service providers, and contractors, and for receiving and addressing their concerns.

Assessment, Prevention, and Control

This section of the EMS Manual describes an ongoing process for assessing operations, for the purposes of preventing and controlling releases, ensuring environmental protection, and maintaining compliance with statutory and regulatory requirements. This section describes monitoring and measurements to ensure sustained compliance. It also includes identification of operations and waste streams where equipment malfunctions and deterioration, operator error, and discharges or emissions may cause: (1) releases of hazardous waste or other pollutants to the environment, (2) a threat to human health or the environment, or (3) violations of environmental requirements.

This section also describes processes for identifying operations and activities where documented standard operating practices (SOPs) are needed to prevent potential violations or pollutant releases, and defines a process for developing, approving and implementing the SOPs. This section provides a system for conducting and documenting routine, objective, monitoring and/or self-inspections by department supervisors and trained staff, especially at locations identified by the process described above.

Environmental Incident and Noncompliance Investigations

Any problems that a facility may have can be viewed as opportunities for improvement. The key is to have a formal system to objectively evaluate the root cause of the incident, and determine which of the key areas of the EMS may have had some control over preventing it. This allows for prompt and effective changes to the EMS or its implementation that can help prevent a recurrence. In addition, this section describes standard procedures and requirements for internal and external reporting of potential violations and release incidents. In order to ensure that these changes are effective, the facility needs to develop a system for tracking these incidents and verifying the corrective and preventative actions.

Environmental Awareness, Training, and Communication Programs

Ensuring proper training and competence of all employees, service providers, and contractors is critical to ensuring environmental performance. This section outlines requirements for training, EMS awareness, and internal and external communication of environmental matters.

Environmental Planning and Organizational Decision Making

Environmental considerations need to be evaluated in all stages of facility planning and decision-making, including plans and decisions on capital improvements, product and process design, training programs, and maintenance activities.

Records and Documentation

This section identifies the types of records required to support the EMS, details their location, and the personnel responsible for maintaining them. It also establishes protocols for responding to inquiries and requests for release of information.

Pollution Prevention Program

This section describes an internal program for preventing, reducing, recycling, reusing, and minimizing waste and emissions. It also includes mechanisms for identifying and encouraging candidate materials for substitution and for tracking progress made through pollution prevention.

"Pollution Prevention" is a term used to describe a philosophy of reducing environmental impacts by preventing the creation of a waste before it occurs, as opposed to traditional environmental control approaches, which treat a pollutant after it is produced. Pollution Prevention, or "P2," usually improves efficiency and decreases costs, compared to traditional environmental controls that generally require energy and other capital inputs to operate. Therefore, whenever possible, P2 approaches should be considered as the first choice for reducing environmental impacts.

The composite boat manufacturing industry has a large and ever-growing array of pollution prevention approaches for reducing environmental impacts and improving production efficiency. P2 approaches generally involve changes in work practices, using specific equipment designed to minimize waste, and/or product substitution to minimize environmental impacts.

> **Example** of a P2 work practice change includes mixing the exact amount of resin or gel coat that is required for a specific job, in order to minimize waste and prevent unnecessary emissions to the air. Many "plural component" application systems for resin and gel-coat incorporate this technique by feeding from two (or more) separate containers and mixing in the gun immediately prior to application. With these systems, the only waste is the product in the spray gun or flow coater itself, which also minimizes cleaning solvent use and clean-up time.

Product substitutions involve the use of materials designed to reduce emissions or waste, for example: low styrene resin, vapor-suppressed resin, low solvent content (low VOC) gel coats, and non-hazardous cleaning solvents to replace acetone.

A detailed listing of all available P2 approaches and technologies is beyond the scope of this EMS guidance, however, a thorough evaluation should be conducted for each facility to determine which P2 options are most suitable for their individual needs. P2 options should be evaluated for all environmental aspects, including Hazardous Waste Reduction, Air Emissions Reduction, Storm Water Control, and Toxics Use Reduction.

Continuing Program Evaluation and Improvement

This section establishes a program for ongoing evaluation of facility compliance with environmental requirements, and specifies how the company will perform or undergo periodic compliance audits by internal staff or an independent auditor. Audit results are reported to upper management and potential problems are used as a basis for improving the EMS.

Public Involvement/Community Outreach

Public involvement can provide valuable input and feedback regarding a company's environmental performance. This section establishes a program to anticipate and proactively address public involvement related to the company's environmental aspects in a positive manner.

Checklist for Developing and Implementing the EMS

One of the most effective and efficient ways to begin implementation of the compliance focussed EMS model is for the facility to undergo a comprehensive environmental assessment. This assessment provides a thorough regulatory evaluation and identifies any corrective measures needed. The evaluation should also serve as a "non-compliance causal analysis," which identifies the root causes of any problems, and helps ensure they will be effectively addressed through the EMS.

	Date Completed	Initialed
1) Conduct or arrange a thorough multimedia environmental assessment, to determine all applicable environmental requirements and evaluate the existing environmental programs.	☐	☐
2) Determine the root cause of any non-compliance findings or potential environmental problems.	☐	☐
3) Review the core elements in the model EMS and determine which element(s) could have prevented or mitigated the problem.	☐	☐
4) Prioritize the core EMS elements that need revision based on the severety or frequency of the problems found duing the assessment.	☐	☐
5) Develop a timetable for corrective actions.	☐	☐
6) Document systematic approaches to address the root causes of the problems and prevent their recurrence.	☐	☐
7) Evaluate the effectiveness of the corrective actions, and revise as necessary.	☐	☐
8) After addressing all issues noted during the assessment, review the EMS to determine any remaining areas in need of improvement or revision.	☐	☐
9) When all areas of non-compliance have been addressed, and at least annually thereafter, return to step one and repeat the process to allow continuous improvement of the EMS.	☐	☐

Model Environmental Management System Manual

(Note: the following policy items are considered essential parts of an effective EMS.)

1. ENVIRONMENTAL POLICY

It is the policy of (name of company) to conduct operations in a way that minimizes environmental impacts, and to comply with all applicable environmental laws and regulations.

This facility is committed to the following objectives:

a) Complying with all applicable environmental laws and regulations, and where economically feasible, achieving more stringent voluntary goals.

b) Developing and using processes that minimize unnecessary environmental impact.

c) Conserving and making efficient use of energy and natural resources, promoting recycling and reuse of materials, and practicing waste minimization.

d) Making environmental aspects an integral part of operating and planning decisions.

e) Developing and maintaining adequate emergency preparedness plans.

f) Supporting programs to improve environmental quality and enhance the safety and health of employees and the public.

g) Providing sound advice on environmental issues to all interested parties.

h) Participating with governmental authorities in the development of technically sound and financially responsible environmental laws and regulations.

i) Educating, training, and motivating our employees to conduct their activities in a safe and environmentally responsible manner.

j) Ensuring conformance with this policy through appropriate compliance programs, including audits.

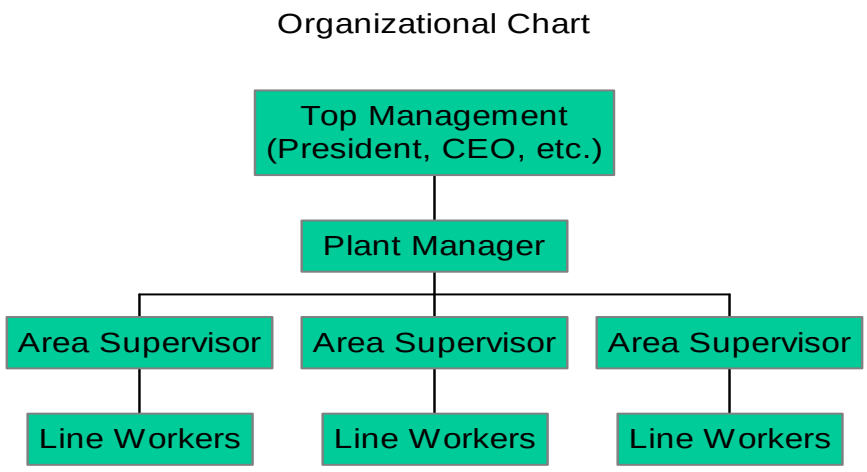
This policy shall be implemented through adoption of policies, programs, and procedures developed for this facility's particular circumstances.

Signature: _____ Date: _____

(Title)

2) ORGANIZATION, PERSONNEL, AND OVERSIGHT OF EMS

Organizational Chart:



A) Top management is responsible for providing the necessary resources to ensure the environmental performance of the facility. Resources include human resources and specialized skills, equipment and technology, as well as financial resources, appropriate to the nature and scale of the environmental impacts associated with the facility.

B) The Plant Manager (or the designated Environmental Manager) is responsible for ensuring the overall environmental performance of the facility and the efficient and effective implementation of this EMS program. The EMS efforts will be communicated to and coordinated with all affected personnel. Responsibilities include the following:

   i) The Plant/Environmental Manager will serve as the EMS Coordinator, and is responsible for scheduling EMS activities, as defined in this manual and as delegated by top management.

   ii) The EMS Coordinator has primary responsibility and authority for:

      (a) Ensuring that the EMS program is established, implemented, and maintained in accordance with this manual;

      (b) Reporting on the performance of the EMS program to top management as a basis for continuing improvement of the EMS program. The EMS coordinator will review the EMS annually to ensure its continuing suitability.

C) The Area Supervisors' responsibilities include carrying out the assignments of the Plant or Environmental Manager, maintaining training and competence requirements, and overseeing the activities of subordinates and contractors.

D) Line Workers are responsible for carrying out work practices to ensure environmental performance, in accordance with training or formal procedures.

3) ACCOUNTABILITY AND RESPONSIBILITY

The Plant/Environmental Manager is responsible for ensuring the overall environmental performance of the facility and is considered the "responsible official" with regards to civil compliance and enforcement issues. The Plant/Environmental Manager may delegate and assign tasks as appropriate, provided that responsibility is clearly communicated and understood by a qualified and competent individual. The Plant/Environmental Manager must maintain adequate oversight to reasonably ensure proper environmental performance.

A description of who is responsible for specific environmental requirements depends on regulatory applicability and the organizational structure of the specific facility. Consider organizational divisions within the company, as well as environmental program divisions, such as Air, Hazardous Waste, Solid Waste/Recycling, Land and Water, and EPCRA (Environmental Planning and Community Right-to-Know Act) requirements.

4) <u>REGULATORY REQUIREMENTS</u>: IDENTIFICATION, INTERPRETATION, AND COMMUNICATION

The Plant/Environmental Manager is responsible for identifying regulatory requirements applicable to the facility, and for ensuring that pending regulatory requirements including federal, state, and local requirements are identified in a timely manner. This responsibility includes the interpretation of regulatory requirements affecting plant operations and the effective communication of those requirements to plant personnel. The facility may request input, guidance, and assistance from qualified consultants, the Maine Department of Environmental Protection (DEP), or the USEPA to help identify, track, and review Federal and State permits or licenses, legislation, and proposed rules. This ensures that applicable regulatory requirements are identified and interpreted consistently and that the appropriate plant personnel are provided timely information. The Environmental Manager is also responsible for developing and presenting the facility's comments during the public comment period for proposed legislation or rules.

Environmental regulatory requirements include regulations administered on the federal level by the United States Environmental Protection Agency (USEPA), and on the state level by the Maine Department of Environmental Protection (DEP). In some cases there may be additional local requirements. In addition to these rules, some facilities may be subject to the Federal Emergency Planning and Community Right-to-Know Act (EPCRA) as delegated to the Maine Emergency Management Agency (MEMA).

A) **Environmental Requirements** most likely to apply to the Boat Manufacturing Industry may consist of the following but may not be limited to (This section should be based on a site-specific regulatory assessment):

i) Maine DEP, Bureau of Remediation and Waste Management

(a) Hazardous Waste Rules and Federal Resource Conservation and Recovery Act (RCRA). (Use DEP *"Handbook for Hazardous Waste Generators"* and DEP Regulations to identify and list all requirements applicable to the individual facility.)

(1) Require characterization of hazardous wastes and proper handling, storage, disposal, record-keeping, and reporting.

(2) Prohibit on-site treatment, storage longer than ninety days, or processing without a permit.

(b) "Universal Wastes" Rules require proper handling and recycling of "Universal Wastes" such as fluorescent tubes, certain batteries, waste computers, mercury thermometers, capacitors, and transformers.

(c) Solid Waste Management Rules

(1) Require proper disposal of solid wastes.

(2) Require "special wastes," such as some paint-related wastes, to be sent only to certain approved facilities.

ii) Maine DEP, Bureau of Air Quality

(a) Generally Applicable Requirements: including visible emissions limits, requirements for parts washers, and surface coating processes.

(b) Air Emission Licenses: for facilities with potential emissions above certain thresholds or equipment above certain capacities (See Bureau of Air Quality Guidance Documents).

iii) Maine DEP, Bureau of Land and Water Quality

(a) Site Location of Development Law.

(b) Erosion and Sedimentation Control Law /Storm Water Management.

(c) Underground Injection Control: No floor drains except under specific conditions.

iv) Maine Emergency Management Agency/USEPA: Emergency Planning and Community Right-to-Know Act (EPCRA)

(a) Facilities that store and/or use certain hazardous substances above listed threshold quantities are required to comply with EPCRA.

(1) EPCRA Sections 301 through 303 address emergency planning requirements, with local emergency response authorities (usually the local fire department) and state Emergency Management Agency.

(2) EPCRA Section 304 establishes emergency release notification for certain extremely hazardous substances (EHSs).

(3) EPCRA Section 311 and 312 address reporting requirements for hazardous chemical based on on-site storage inventory.

(4) EPCRA Section 313 establishes requirements for Toxic Release Inventory reporting based on chemical usage or production quantities.

v) **DEP Office of the Commissioner:** Facilities subject to EPCRA may be subject to the Maine "Toxic Use Reduction Act" (TURA) administered by the DEP Office of the Commissioner.

vi) **Specific Regulatory Findings and/or Violations**: Inspection findings, Consent agreements, administrative requirements, Letters of Warning, etc.

vii) **Local Regulatory Authorities**, such as Municipalities, Lakes or River Commissions, Soil and Water Conservation Commissions, etc. with jurisdiction over the facility.

B) At least annually, the facility will review the regulatory requirements noted above, and review their existing compliance programs, to evaluate the completeness of their regulatory programs.

i) Regulatory language should be carefully reviewed by the facility staff, possibly in consultation with a qualified consultant or the DEP inspector or licensing staff assigned to the facility. These personnel have knowledge of plant processes, equipment and work practices, as well as experience in regulatory interpretation.

ii) Applicable requirements are interpretted into clear, concise inspection forms, logsheets, databases, reporting proceedures, etc., to facilitate routine compliance activities.

iii) Requirements, standards, and guidelines are incorporated into standard operating practices, written work practices, and/or engineering design criteria with measurable (or otherwise verifiable) criteria.

C) Reporting and Communication of Environmental Requirements: Establishes and describes processes to ensure communication with regulatory agencies regarding regulatory compliance.

i) Routine Reporting: Identify all required reports and establish a written timeline to ensure compliance.

ii) Non-Routine Reporting: Establish procedures to ensure immediate reporting to DEP for spills, permit deviations, or malfunctions of regulated equipment, followed by detailed written reporting as necessary.

(a) Use DEP forms if applicable, describe root cause, duration, remedial action to limit event, and actions taken to prevent a recurrence.

5) ASSESSMENT, PREVENTION, AND CONTROL

Continuous environmental improvement will be achieved by implementing the following system:

A) Monitoring and Measurement: Identify and establish measurable limits or audittable operating parameters to ddocument compliance with all regulatory requirements or to meet attainable goals "beyond compliance."

i) Establish and communicate understandable and attainable environmental goals and objectives.

ii) Utilize and organize existing programs for daily log sheets, self-inspection checklists, etc. Ensure that round sheets specify the applicable limits, and include notification procedures.

iii) Ensure there is an effective system for controlling and documenting the use of all chemicals and products associated with regulated emissions or wastes.

B) Operational Control and Preventive Action: The goal of the control and preventative measures is to achieve continuous improvement in environmental performance. Attaining this goal requires both proactive control and reactive remedies. Proactive assessment of operations involves the identification of conditions that may lead to non-compliance or releases, and taking preventive actions.

i) (Include updated process flow schematic diagrams).

ii) Carefully consider all areas that may have significant environmental impacts and ensure control systems exist, including monitoring of the control system;

iii) Control of Purchased Products: Maintain an updated list of all purchased products, consider substitution of hazardous materials. Build on existing MSDS program;

iv) Control of Contractors: Ensure contractors conduct all operations in a manner to ensure compliance and minimize environmental impacts. Ensure all contract operations are compatable with facility proccesses and equipment.

v) Organize and incorporate (or reference) existing operations manuals, SOPs, procedures, maintenance plans, etc. Review periodically to ensure they are complete and accurate;

(a) Develop a system to identify, implement, and track preventive and corrective actions.

vi) Chemical dispensing equipment should be monitored or alarmed to ensure proper application rate to minimize waste.

vii) Preventive actions may include maintenance schedules, computer/automated systems, spare parts inventory of critical replacement items, redundancy of critical components, and monitoring equipment.

viii) Environmental Observations and Inspections: Periodic verification of these systems is critical to ensure proper performance.

(a) Establish system to review daily, weekly, or monthly rounds sheets.

(b) Conduct self-inspections at least annually.

C) Emergency Preparedness and Response: Proper implementation of a formal EMS may have significant benefits regarding emergency preparedness and response. Therefore, the EMS program thoroughly addresses emergency preparedness and response regarding all environmental media.

i) The facility must have a reliable system to ensure a qualified on-call person is assigned and available, and that there is a reliable communication/notification system in place for plant personnel and regulatory authorities when necessary, to address and correct emergency situations. (Reference or incorporate any required Spill Prevention, Control, and Countermeasure (SPCC) Plans, Contingency Plans, Risk Management Plans, etc.)

ii) Hazardous chemicals must be stored and handled in manner to minimize the likelihood of releases, either catastrophic or chronic, and systems must be established to minimize the impact of releases if they occur. In addition to addressing hazardous raw materials such as resin, hardener, gel coat, paint, polyurethane, varnish, solvents, and petroleum products, specific regulatory requirements for hazardous wastes must also be addressed.

6) ENVIRONMENTAL INCIDENT AND NONCOMPLIANCE INVESTIGATIONS

Reactive assessment of operations involves the identification of root causes of, and parties responsible for, non-compliance or chemical releases, and taking appropriate corrective action. (Note: A clear internal chain of responsibility for reporting environmental problems or concerns, as outlined in sections 2), 3), and 4) is essential to ensure a proper response in emergency situations.)

A) In the event of a spill, discharge, permit deviation, etc., notify the responsible agency immediately, describe: nature, cause, duration, extent, remedial action, and steps to prevent a recurrence;

i) For most petroleum products and other hazardous materials, a spill report must be submitted within five days, using DEP supplied forms;

(a) Thorough root cause analysis;

B) Evaluation of Operations: Ensure that there is a system of thorough self-evaluation in the event of all environmental incidents;

i) Engineering controls should be considered as the primary means to prevent a recurrence;

ii) Penalties and disciplinary action should also be considered as a possible component of established corrective measures to help pevent a reccurrence due to operator error.

C) Any non-conformance with the requirements of the EMS itself, or EMS-related activities that are not adequately addressed or implemented through this program, will be brought to the attention of the EMS Coordinator for resolution. If steps cannot be taken to immediately resolve the condition, an “action plan” shall be established to resolve the issue in a timely manner. The “action plan” shall document the situation, describe the corrective action, report to all affected parties as appropriate, and include a system for closure when the action is complete.

7) ENVIRONMENTAL AWARENESS, TRAINING, AND COMMUNICATION PROGRAMS

Environmental Training Programs: Describes a program for ensuring that personnel responsible for meeting and maintaining compliance with environmental requirements are competent on the basis of appropriate education, training, and/or experience. All personnel whose work involves environmental aspects shall receive appropriate training, considering their specific job tasks.

A) Regulatory Training Requirements

i) Determine if training is required by regulation, such as "hazardous waste operator training" for large quanitity hazardous waste generators. If so, develop and implement the required training program.

(a) Competence: The facility will ensure that all staff with key roles shall be competent on the basis of appropriate education, training and/or experience.

(b) Specific requirements: Identifies specific education and training required for specific jobs, as well as a process for documenting this training.

B) Company-Required Training: Training and competence are essential to continual environmental compliance. If company-required training is deemed appropriate, determine the employees to be trained, the appropriate program format and contents, and implement the training.

i) Employees must be provided with the knowledge of how to perform their work to proactively avoid or mitigate the occurrence of environmental incidents and how to report and react to such incidents upon discovery.

ii) Modifications to equipment, changes in work practices, recurring environmental incidents and/or adverse trends in environmental performance can indicate a need for facility-required training.

(a) Determine if modifications may have potential impacts of on plant environmental performance, or

(b) Determine the root causes of environmental incidents and/or performance problems.

(1) Determine if and how training can affect environmental performance related to employee awareness, knowledge, or proficiency.

(2) If training is deemed appropriate, determine the employees to be trained, the appropriate program format and contents, and implement training.

(3) If training is not deemed appropriate, determine the proper method of communicating the effects of modifications of equipment, changes in work practices, or the causes of (and remedies for) environmental incidents and adverse performance to employees.

C) Continuous Environmental Performance Improvement

i) Provide skills and knowledge to enable employees to improve environmental performance.

(a) Review past environmental performance based on monitoring/measurement, observations, inspections and audits.

(b) Identify key areas for improvement in performance.

(c) Establish measurable objectives and/or standards.

(d) Determine if and how training can help achieve objectives and/or meet standards.

(e) If training is deemed appropriate, determine the employees to be trained, the appropriate training format and contents, and implement training.

ii) Provide skills and knowledge to enable employees to enhance preparedness capabilities for responding to environmental incidents.

D) EMS Awareness Training: Employees need to be trained on the significant environmental benefits that may be achieved through effective implementation of the EMS.

i) The overlying importance of the goals outlined in the Environmental Policy.

ii) Improvement will require changes in awareness, thinking, actions, empowerment, and accountability by management, supervisors, and non-management employees. These changes require the clear communication of plant policies, objectives, and goals, as well as the environmental responsibilities and commitments of the facility.

iii) All employees must understand how their actions affect the plant's operation, environmental performance, and compliance.

E) Types of training vary depending on the objectives of the training program. Training may be conducted at a work location or in a formal classroom setting. All formal training must be documented by a dated sign-in sheet, and should include an evaluation form in order to provide opportunities for continuous improvement. Recurring or common performance problems or deficiencies discovered by these methods are indicators that new or revised environmental training may be required. Training formats include:

i) *Publications:* Publications such as position papers, technical reports, or articles are used as a training method for specific environmental concepts and issues. This training involves distributing the materials to selected employees with an explanation as to the relevance to environmental issues. This format does not include documentation of training.

ii) *Procedures:* Written procedures provide detailed guidance for specific work-related activities. New or revised documents are reviewed with affected employees to ensure understanding. This format includes documentation of training.

iii) *Paired On-The-Job Training:* Also known as job-shadowing, paired-on-the-job training provides one-on-one instruction by observing work practices directly from a more experienced employee. This format does not include documentation.

iv) *Formal On-The Job Training:* Formal-on-the job training also provides individualized training but utilizes formal methods (observations or testing) to determine training effectiveness. This format includes documentation of training.

v) *Classroom Training On-Site:* This training format utilizes plant training facilities. Classroom training is generally provided by an experienced instructor utilizing audio-visual equipment . This format includes documentation of training.

vi) *Classroom Training Off-Site:* Off-site training is generally provided by training consultants specializing in training programs not offered at the plant. Off-site training may be necessary for specific, required regulatory training from certified training providers. This format includes documentation of training.

8) ENVIRONMENTAL PLANNING AND ORGANIZATIONAL DECISION-MAKING

This section requires establishing written targets, objectives, and action plans, as appropriate, including those for contractor operations conducted at the facility, and how specified actions will be tracked and progress reported. Targets and objectives must include achieving and maintaining compliance with all environmental requirements.

A) Environmental Planning and Communication Programs

i) Monthly meetings to discuss environmental compliance program and refine EMS.

(a) Document attendance and meeting minutes.

ii) Environmental hotline.

(a) Keep log of complaints/concerns, etc., both internal and external.

9) RECORDS AND DOCUMENTATION

This section specifies the data management systems for internal environmental record-keeping requirements, such as EMS documentation, waste tracking, hazardous waste characterizations, emissions tracking, etc.

A) EMS Program Documentation: The EMS Manual will be maintained in printed copy, and a working draft will remain clearly marked in a word-processing format to facilitate continual improvement by the EMS Coordinator. The EMS Manual will:

i) Describe the core elements of the EMS program and the interaction of those elements.

ii) Provide locations of related documents, i.e.: environmental compliance files, MSDSs, etc.

B) Document Control: All significant Environmental and EMS documents will be maintained in an organized filing system by the Environmental Manager/EMS Coordinator. The following general procedures will be used to control significant documents related to this EMS program.

i) All records must be legible, dated, readily identifiable, signed or initialed by the responsible person, maintained in an orderly manner, and retained for a minimum of five years or according to the applicable regulatory requirements.

ii) The most current versions of the Environmental Policy and EMS manual will be maintained on site. Whenever the EMS Manual is updated, a copy of the old version will be saved in a file clearly marked as "Obsolete Documents" in order to track changes.

10) POLLUTION PREVENTION PROGRAM

Pollution prevention (P2) options should be evaluated for all environmental aspects, including Hazardous Waste Reduction, Air Emissions Reduction, Storm Water Control, Toxics Use Reduction, and Pollution Prevention (P2) Programs. A detailed listing of all available P2 approaches and technologies are beyond the scope of this EMS guidance, however, a thorough evaluation should be conducted for each facility to determine which P2 options are most suitable for their individual needs.

A) Describe procedures for hazardous waste, toxic release, and toxic use reduction (can incorporate or reference TURA P2 plan, if applicable).

B) Describe a procedure to control potential groundwater contamination or storm water run-off.

C) Describe a program to manage fugitive air emissions.

11) CONTINUING PROGRAM EVALUATION AND IMPROVEMENT

This section describes a program for periodic (at least annual) evaluation of the EMS. The evaluation results are used as a basis for program improvements and revisions to the EMS manual, which are then communicated to affected employees, on-site service providers, and contractors, to ensure its continuing suitability, adequacy, and effectiveness.

A) The EMS coordinator will review the EMS at least annually to continue to refine this program. This review will allow review of all relevant communication regarding EMS matters. All significant actions will be recorded.

   i) The review process will be in the form of a facility self-audit focusing on compliance and on implementation of the EMS.

   ii) The review shall address the possible need for changes to policy, objectives and other elements of the EMS Program, in light of audit results, changing circumstances and the commitment to continual improvement.

   iii) The review shall be documented and recorded by the EMS Coordinator.

B) The results of the review will be forwarded to top management and presented in detail. All input and discussion will provide the basis for additional revisions to the EMS program.

C) The EMS coordinator will review the changes to the EMS with all employees during their annual EMS awareness training, or earlier if the changes are significant.

12) PUBLIC INVOLVEMENT/COMMUNITY OUTREACH

This section describes a program for ongoing community education and involvement in the environmental aspects of the organization's operations and general awareness.

A) Effective communication on environmental matters is essential to proper implementation and continual improvement of the EMS program. Therefore, the facility shall implement the following procedures regarding communication on EMS matters.

   i) The EMS Coordinator will coordinate all relevant communication on environmental matters. All relevant communication and the response to it will be documented in accordance with the section on records and documentation.

   ii) The EMS Coordinator receives all relevant communication from external parties interested in the environmental programs. The EMS Coordinator will determine the appropriate response in proportion to the nature of the communication received. All relevant communication and the response to it will be documented in accordance with the records and documentation procedures or corrective action plans, as applicable.

   iii) All external communication on significant environmental aspects will be responded to in a timely manner and a copy will be maintained according to the procedures for records and documentation. Communication requiring future follow-up will be filed in a manner to prompt follow up action at the appropriate time (such as the annual EMS review).